

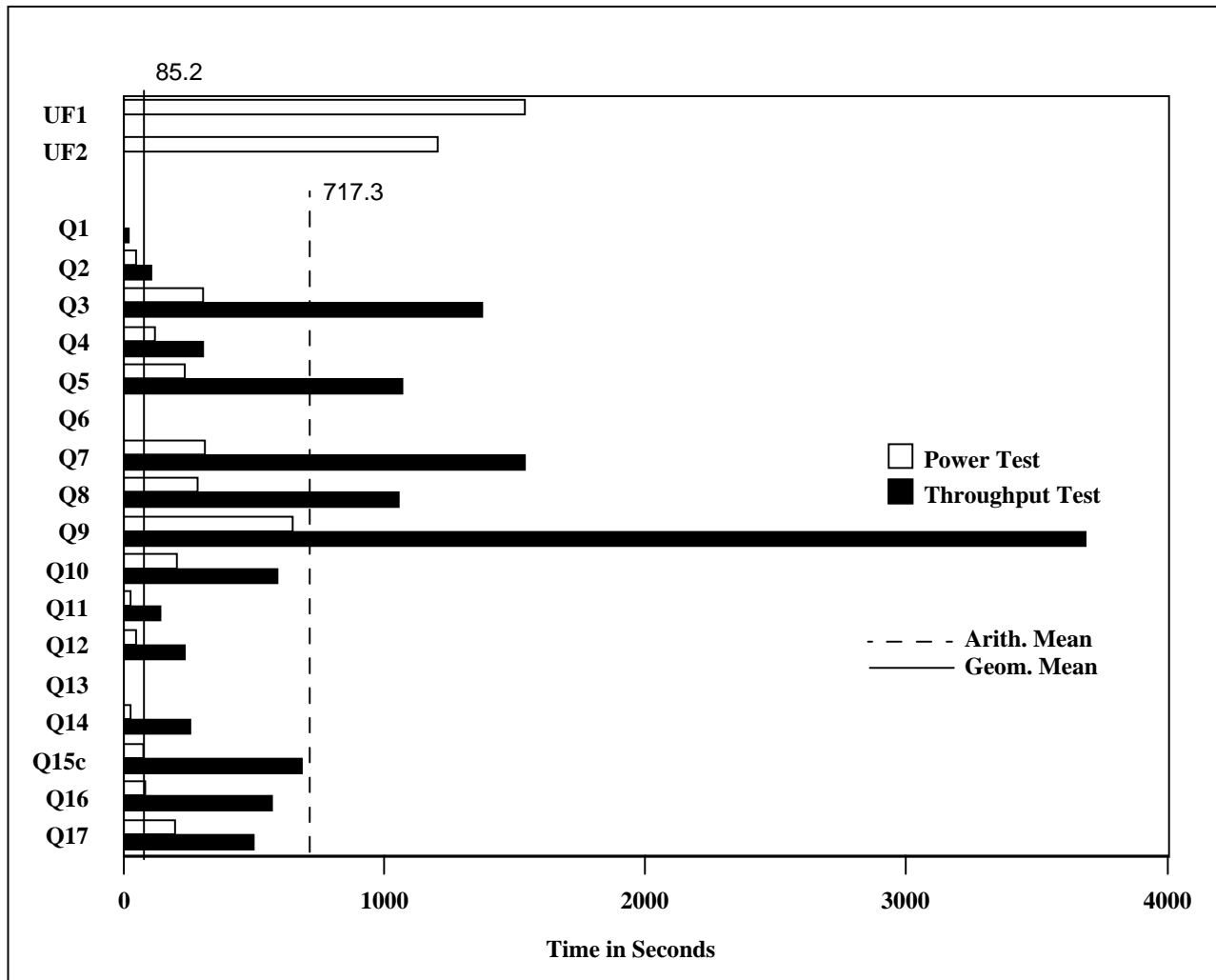


# IBM RS/6000 S70 Advanced with DB2 UDB 5.2.0

TPC-D Rev. 1.3.1

Report Date:  
November 2, 1998

<b>Total System Cost</b>	<b>TPC-D Power</b>	<b>TPC-D Throughput</b>	<b>Price/Performance</b>
<b>\$1,266,483</b>	<b>4,226.5</b> QppD@100GB	<b>1,092.6</b> QthD@100GB	<b>\$589</b> \$ / QphD@100GB
Database Size <b>100GB</b>	Database Manager DB2 UDB 5.2.0	Operating System IBM AIX 4.3.2	Other Software None
			Availability Date Dec. 31, 1998



Database Load Time: 11:16:36      Total Data Storage/Database Size: 10.22      Raid: Y (RAID 1)

### System Components

<b>Processors</b>	12 x 262MHz PowerPC RS64-2 w/ 8MB L2 cache
<b>Memory</b>	16GB
<b>Disk Controllers</b>	3 PCI F/W SCSI 12 PCI SSA (Serial Storage Architecture)
<b>Disk Drives</b>	7 x 9.1GB F/W SCSI Hot Pluggable 192 x 4.5GB SSA Hot Pluggable, 16 x 9.1GB SSA Hot Pluggable
<b>Total GB Storage</b>	1022.75 GB



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Description	Number	Source	Price	Qty	Disc	Price	Price	
<b>Server Hardware</b>								
RS/6000 Enterprise Server S7A, 1.44 Diskette Dr	7017-S7A	IBM	13,271	1		13,271	48,960	
4-way 262MHz RS64-2 Proc. Card, 8MB L2 ea.	5312	IBM	75,000	2		150,000	80,640	
4-way 262MHz RS64-2 Proc. Card, 8MB L2 ea.	5313	IBM	75,000	1		75,000	40,320	
8192 MB R1 Memory (4 x 2048MB cards)	4179	IBM	98,304	2		196,608	0	
Token Ring Adapter	2920	IBM	795	1		795	0	
Remote I/O Cable - Drawer to Drawer	3126	IBM	595	1		595	0	
Drawer to Drawer Power Control Cable	6006	IBM	60	1		60	0	
I/O Rack	7000	IBM	3,500	1		3,500	0	
Support Processor Group	6322	IBM	2,700	1		2,700	0	
Ultra SCSI PCI - Bus Adapter	6206	IBM	395	3		1,185	0	
SSA Multi-Initiator/RAID EL Adapter - PCI	6215	IBM	3,000	12		36,000	0	
SSA Fast Write Cache Option	6222	IBM	3,700	12		44,400	0	
Prestige 6000 VA, UPS - CPU Drawer	9910-EP8	IBM	5,505	1		5,505	0	
Prestige 3000 VA, UPS - SSA Drawers	9910-U33	IBM	4,221	4		16,884	0	
Internal 12/24GB 4mm Tape Drive	6159	IBM	3,200	1		3,200	0	
IBM ASCII Terminal, Keyboard, Cable	3153-BG3	IBM	622	1		622	660	
			<b>Subtotal</b>			550,325	170,580	
<b>Server Software</b>								
AIX 4.3.2 for S7A - 50 Designated Users	5765-C34	IBM	4,610	1		4,610	0	
IBM C for AIX V4.4	5765-C64	IBM	1,578	1		1,578	0	
Performance Toolbox V2.2	5765-654	IBM	850	1		850	0	
DB2 UDB EEE for AIX - Media Package	31L0212	IBM	34,999	1		34,999	0	
DB2 UDB EEE 50 User NC Pack	31L0224	IBM	0	1		0	0	
DB2 UDB EEE up to 16 Processors	31L0227	IBM	244,999	1		244,999	0	
			<b>Subtotal</b>			287,036	0	
<b>Storage Devices</b>								
9.1 GB SCSI-2 F/W Hot Swap Disk	2913	IBM	2,200	7		15,400	0	
SCSI I/O Drawer	6320	IBM	23,766	2		47,532	0	
Primary I/O Drawer Group	6321	IBM	600	1		600	0	
Secondary I/O Drawer Group	6323	IBM	734	1		734	0	
SCSI 6-pack Hot Swap Back Plane	6547	IBM	600	2		1,200	0	
System Rack Model R00	7015-R00	IBM	3,110	2		6,220	2,976	
SSA Disk Subsystem w/ 4 4.5GB Disks	7133-020	IBM	19,350	13		251,550	124,800	
4.5 GB Disk Drive Module	3401	IBM	1,900	144		273,600	0	
9.1 GB Disk Drive Module	3901	IBM	3,000	12		36,000	0	
9.1 GB Disk Drive Module Select	3904	IBM	2,100	4		8,400	0	
SSA Cables	5006	IBM	40	26		1,040	0	
			<b>Subtotal</b>			642,276	127,776	
			<b>Total</b>			<b>1,479,637</b>	<b>298,356</b>	
<b>Discounts</b>								
Midrange Service Option					17%	(50,721)		
Extended Maintenance Option					17%	(42,098)		
IBM Software Revenue Discount - DB2					21%	(58,800)		
IBM Dollar Volume Discount					30%	(359,892)		
						<b>\$1,266,483</b>		
			<b>Five Year Cost of Ownership:</b>					
			QppD	4,226.5				
			QthD	1,092.6				
			QphD	2,148.9				
			<b>\$/QphD@100GB</b>			<b>\$589</b>		

Audited by Francois Raab, Information Paradigm, Inc.

Prices used in TPC benchmarks reflect the actual prices a customer would pay for a one-time purchase of the stated components. Individually negotiated discounts are not permitted. Special prices based on assumptions about past or future purchases are not permitted. All discounts reflect standard pricing policies for the listed components. For complete details see the pricing sections of the TPC benchmark specifications. If you find the stated prices are not available according to these terms, please notify the TPC at [pricing@tpc.org](mailto:pricing@tpc.org). Thank you.



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November 2, 1998

### Numerical Quantities Summary

#### Measurement Results:

Database Scaling (SF/Size)	=	100
Total Data Storage/Database Size	=	10.22
Database Load Time	=	11:16:36
Query Streams for Throughput Test	=	5
TPC-D Power Metric (QppD@100GB)	=	4,226.5
TPC-D Throughput Metric (QthD@100GB)	=	1,092.6
Composite Query-per-Hour Rating (QphD@100GB)	=	2,148.9
Total System Price over 5 years	=	\$1,266,483
TPC-D Price/Performance Metric (\$/QphD@100GB)	=	\$589

#### Measurement Intervals

Measurement Interval in Throughput Test (Ts) = 28,006 seconds

##### Duration of Stream Execution

Stream ID	Seed Used	Start Date	Start Time	End Date	End Time
Stream 00	304789933	10/26/98	22:48:46	10/27/98	00:19:43
Stream 01	542987759	10/27/98	00:27:50	10/27/98	03:49:16
Stream 02	300838752	10/27/98	00:27:50	10/27/98	03:52:31
Stream 03	1046734243	10/27/98	00:27:50	10/27/98	03:50:17
Stream 04	731427844	10/27/98	00:27:50	10/27/98	03:52:23
Stream 05	1768551525	10/27/98	00:27:50	10/27/98	03:50:49
Updates		10/27/98	00:27:50	10/27/98	08:14:36

#### Timing Intervals (in Seconds)

Stream ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	
Stream 00	3.5	52.7	308.5	128.1	241.3	0.5	320.7	289.7	654.1	
Stream 01	34.2	135.5	1315.7	399.2	946.2	1.0	1533.0	1030.8	3429.9	
Stream 02	24.8	92.0	1331.2	384.1	1053.4	4.9	1692.5	1063.1	3754.6	
Stream 03	18.2	78.3	1467.2	322.9	1100.8	3.8	1555.4	1274.7	3368.1	
Stream 04	29.2	83.7	1177.4	146.6	1184.9	1.4	1421.8	1037.4	4389.5	
Stream 05	30.8	168.5	1603.6	304.1	1093.4	0.7	1502.4	870.3	3499.9	
Minimum	18.2	78.3	1177.4	146.6	946.2	0.7	1421.8	870.3	3368.1	
Average	27.4	111.6	1379.0	311.4	1075.7	2.4	1541.0	1055.3	3688.4	
Maximum	34.2	168.5	1603.6	399.2	1184.9	4.9	1692.5	1274.7	4389.5	
Stream ID	Q10	Q11	Q12	Q13	Q14	Q15c	Q16	Q17	UF1	UF2
Stream 00	212.2	28.8	53.6	2.1	31.5	85.1	91.7	200.8	1211.6	1541.1
Stream 01	594.8	144.3	254.5	3.9	289.0	551.8	813.6	608.7	13381.9	1918.3
Stream 02	606.8	192.9	237.1	7.9	283.9	684.6	435.1	432.3	1248.6	1904.4
Stream 03	527.6	185.2	270.2	4.3	208.7	797.3	483.3	481.6	1330.7	1787.1
Stream 04	691.9	96.9	225.0	3.7	220.0	530.0	501.9	532.2	1323.7	1951.0
Stream 05	562.5	122.5	190.5	4.5	282.7	871.7	628.3	442.6	1331.5	1829.4
Minimum	527.6	96.9	190.5	3.7	208.7	530.0	435.1	432.3	1248.6	1787.1
Average	596.7	148.4	253.5	4.9	256.9	687.1	572.4	499.5	3723.3	1878.0
Maximum	691.9	192.9	270.2	7.9	289.0	871.7	813.6	608.7	13381.9	1951.0